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Letter dated 30 April 2013 from the Permanent Representative of Peru to the United Nations addressed to the President of the Economic and Social Council

Attached herewith is the national report of Peru on progress towards the achievement of the internationally agreed goals, including the Millennium Development Goals, for the annual ministerial review to be held during the high-level segment of the substantive session of 2013 of the Economic and Social Council (see annex).

I should be grateful if you would circulate the present letter and its annex as a document of the Council, under item 2 (b) of the provisional agenda.

(*Signed*) Enrique Roman **Morey**
Ambassador
Permanent Representative

* E/2013/100.

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Annex to the letter dated 30 April 2013 from the Permanent Representative of Peru to the United Nations addressed to the President of the Economic and Social Council

[Original: Spanish]

National report for the national voluntary presentation of Peru to the Economic and Social Council

Summary

Until July 2011, science, technology and innovation (STI) was not a priority for the Government of Peru, despite the fact that the National Accord approved in 2002 already recognized the "development of science and technology" as State policy.

The gross domestic product (GDP) of Peru has tripled in the past decade and growth last year was more than 6 per cent. Similarly, the country has sustained one of the lowest levels of inflation in the region and has improved its level of competitiveness in the main international rankings. The solidity of its macroeconomic accounts, as well as the handling of foreign investments in the country, have been reflected in the investment grades obtained from the main international credit ratings agencies and in the recognition that the Peruvian economy has the second lowest sovereign risk in the region.

However, Peru still suffers from low productivity, poor levels of education, technological readiness and advanced human resources training, as well as scant promotion of science, technology and innovation and limited participation by firms in value chains, all of which compromises its competitiveness in international markets.

While continuing with efficient macroeconomic management, the Government of Peru is firmly resolved that the country should make progress with regard to science, technology and innovation, which are now configured as the strategic baseline for the sustainability of national growth, for economic diversification and for the distribution of that growth, a process known as social inclusion.

In order to be able to strengthen and add value to production chains, the Government is prioritizing the training and mobilization of human resources, especially in science, technology and innovation, so that Peru becomes a country with talent and not only natural resources. In that context, Peru is strengthening its institutions in the area of science, technology and innovation, and also intellectual property. In that vein, it is encouraging investment in science, technology and innovation, and has launched the Programme of Innovation for Competitiveness (the second phase of its Financing for Innovation, Science and Technology programme (FINCyT 2)), and created the Framework Fund for Innovation and Technology (FOMITEC), with resources of up to US$ 100 million and 300 million nuevos soles respectively, among other actions, with the aim of increasing the supply of technological services, forming a critical mass of researchers, promoting technology-based firms and stimulating innovative projects.

Such dynamic economic growth has undoubtedly been accompanied by a significant reduction in levels of poverty and inequality, chronic child malnutrition, maternal mortality and neonatal mortality, among other human development indicators, which has enabled Peru to meet some of the Millennium Development Goals (MDGs) ahead of the target date. In the past eight years, Peru has managed to bring more than 7 million Peruvian men and women out of poverty, constituting approximately one quarter of the current population, and is focusing strongly on a food and nutrition security strategy.

Peru is a country firmly committed to the protection of the environment, in accordance with the principle of common but differentiated responsibilities, and in order to ensure its sustainability for future generations. In that connection, it is promoting the transfer of technologies that help to mitigate the adverse effects of climate change and contribute to sustainable development. It is a priority for the Government of Peru to achieve the sustainable and responsible development of the country's natural resources.

I. Introduction

1. In the past few years the Peruvian economy has experienced unprecedented growth. Between 2000 and 2012, GDP increased at an average annual rate of 5.8 per cent and GDP per capita increased by 70.1 per cent. During the period 2000-2012, exports increased at an average annual rate of 17.0 per cent, accounting for 25.5 per cent of GDP by 2012, and the stock of foreign investment rose from US$ 12,306 million in 2000 to US$ 22,674 million in 2012. An appreciable reduction in the levels of overall poverty was also observed, from 54.1 per cent in 2000 to 27.8 per cent in 2011. In this context, Peru is on track to achieve the MDGs even before the 2015 target date established by the Member States at the Millennium Summit of the United Nations, held in 2000.

2. The results of the unprecedented growth in exports, particularly of mining products, as well as the major contribution made by construction and services to domestic consumption, have constituted an important driving force for the Peruvian economy. In addition, the promotion and diversification of exports, the opening up of new markets and the consolidation of the domestic market have been very important factors for the growth of the Peruvian economy over the past decade.

3. However, in order for economic growth to be sustained over the medium and long term, and for improvements in the quality of life of the population to continue and extend to all socioeconomic levels, international experience shows the key importance of migration towards a knowledge economy based on innovation, which maximizes and empowers the country's industrial model, and makes the business sector more competitive in general terms. Thus, the capacity of the Peruvian economy to generate, absorb, disseminate and utilize scientific and technological knowledge in its productive sectors is being prioritized.

4. Capacity-building for the development and harnessing of science, technology and innovation, for the benefit of the production model and society as a whole, depends not only on a series of scientific entities, a larger budget allocation to research, or a national science, technology and innovation plan. The links between and effectiveness of these tools depend on the degree of development of various subsystems (political, scientific, productive and financial) and the capacity of such subsystems to interconnect and work together, so as to produce, distribute and use scientific and technical knowledge, create synergies, and promote competition within a stable macroeconomic framework and a legal, institutional and even cultural environment that allow the development of innovative activity. Peru has fallen back in terms of innovation, ranking 117th out of 144 countries in the innovation pillar.

5. For the World Economic Forum (WEF), competitiveness is defined as the set of institutional and policy factors that determine a country's level of productivity, and it is estimated based on 12 pillars. Peru currently ranks 61st for global competitiveness and 94th for innovation and sophistication factors.

6. For this reason, one of the pending tasks for Peru is to promote innovation, science and technology in the key sectors that have shown themselves to be dynamic and of high impact.

7. The effectiveness of the national innovation system, defined as a set of actors, institutions and framework conditions, depends on the individual development

trajectories and the accumulation of knowledge and skills available to agents of the system. Although innovative activity essentially takes place at the company level, while the generation of knowledge lies, generally speaking, within the remit of scientific entities, public science, technology and innovation policies exercise great influence on the development of both types of activity, through the development of human capacities and the creation and maintenance of a favourable environment. Innovation is therefore a public good.

8. Among the main actions identified for improvement, increased investment in and financing of science, technology and innovation is particularly important. The level of public and private investment in research and development in Peru, of less than 0.2 per cent, is "meagre" in comparison with other countries in the region. In addition, the critical mass of researchers in public research institutions and universities is low.

9. The research and development infrastructure is incomplete, while research and accreditation mechanisms are in some cases obsolete and inadequate.

10. Despite having achieved high rates of literacy and school enrolment, the education system still does not perform consistently well in directing pupils towards careers in science and technology that contribute to the growth of value added in firms. Interactions between the private sector, academia and public institutions are still limited.

Characteristics of the growth of the Peruvian economy

11. An indication of the degree of technological development of a country, and its pattern of international trade, may be obtained by looking at its exports in terms of technological content or knowledge. The growth of the past decade has not transformed the country's productive structure into a more knowledge-based economy. In 2011, the composition and degree of concentration of exports was the same as in the 1960s. In 2011, traditional exports represented 86 per cent of total exports, and this ratio has been unchanged throughout the past 15 years. Exports of intermediate and high-technology-intensive manufactured goods scarcely reach 4 per cent of total goods exports and the 10 main Peruvian export products account for more than 60 per cent of total exports, as well as being of limited technological content.

12. The growth and opening up of the Peruvian economy have made it particularly attractive to foreign direct investment (FDI) which has occurred in at least two phases: at the beginning of the 1990s, when privatizations of State-owned companies took place; and at the end of that decade, which brought new investments in mining, gas, communications and agro-industry. During the past few years, Peru has obtained "investment grade" ratings for its public debt from the three main credit rating agencies, a factor which makes FDI even more attractive. However, said FDI has not had major repercussions for the development of science, technology and innovation in the country. Foreign firms imported capital goods and knowledge-intensive services, and there has been no significant correlation with the development of production chains.

13. The Peruvian sectoral structure corresponds to that of an intermediate developing country, with primary sectors accounting for 16.6 per cent of GDP, a

small secondary (industrial) sector (13 per cent of GDP), and a fairly large services sector (62.8 per cent).

14. Peru has a polarized enterprise structure. There is a core of formal large and medium-sized enterprises, which make a significant contribution to GDP and have greater capacities and resources for innovation, but which represent less than 3 per cent of the total number of companies. Meanwhile, the large majority of businesses are small, and often informal, making a contribution that is significant with regard to employment but limited as far as GDP is concerned, with low productivity and greater difficulties in terms of innovation and development.

15. One way of viewing and analysing countries' production structure is to focus on the size of their businesses or economic units.

Situation of science, technology and innovation, and the relationship with national competitiveness

16. Until July 2011, policies for the promotion of science, technology and innovation were not given the necessary priority.

17. Developed countries invest between 2 and 4 per cent of their GDP in research and development (United Nations Educational, Scientific and Cultural Organization Institute for Statistics, 2009). Investment by Peru in research and development is, as has been stated, still conservative in comparison with other countries in the region that have increased their total expenditure. According to data from the Regional Network on Science and Technology Indicators (RICYT), during 2004 investment under this heading in Peru stood at scarcely 0.14 per cent of GDP, below the Latin American average, which in the same year was 0.5 per cent. The countries of the Organisation for Economic Co-operation and Development (OECD) invested 2.2 per cent of their GDP in research and development during that period. According to the same source, in 2004 research and development expenditure in Peru was carried out by higher education institutions (38.1 per cent), the business sector (29.1 per cent), the Government (25.6 per cent), and private non-profit organizations (7.1 per cent). This is indicative of an absence of links between institutions, as well as between industry and academia. Worldwide, and also across the region, it is the business sector that spends most on research and development.

18. The above figures are related to the number of researchers hired by sector in 2004. The Government and academia are the sectors that hired most researchers: 45.8 per cent and 40.2 per cent respectively. The business sector hired barely 13.8 per cent of researchers, contrary to the global and regional trend.

19. In 2012, the first National Survey of Innovation in the Manufacturing Industry was conducted. The survey, led by the Ministry of Production and the National Institute of Statistics and Information Technology, with the support of the Inter-American Development Bank (IDB), shows that 65.5 per cent of firms in the country carry out innovation activities, while 34.5 per cent do not. A total of 23.7 per cent of innovations target the national market. The bigger the company, the greater its propensity to innovate: 81 per cent for large companies, 70 per cent for medium-sized enterprises and 63 per cent for small firms. The results indicate that firms begin their innovative activity in the fourth year and the main motivation for innovation is the market, i.e. the need to increase sales. The factors that encourage companies to put innovation activities into practice are: detection of completely or

partially unsatisfied market demand (51.5 per cent), threat of competition (49.0 per cent), and utilization of an idea generated within the firm (32.3 per cent). The firms that innovate the most are those that have connections with a larger number of actors. However, the survey reveals that investment in research and development stands at 0.1 per cent of total sales of the firms surveyed, which shows a correlation with the research and development investment figures as a percentage of GDP. For reference, firms in OECD countries invest, on average, 1.89 per cent of total sales in research and development. Firms state that they find it very difficult to innovate and, although they believe it is important, they do not yet consider it a priority. The survey shows that the main problems for innovation include its high cost (32.6 per cent), the shortage of qualified staff (31.8 per cent) and the market's dominance by established firms (24.0 per cent).

20. Other indicators in the area of science, technology and innovation are scientific publications and patents. Such indicators are easier to gather but do not provide an overview of business innovation, which is perhaps most important in terms of the country's productivity and competitiveness.

21. There are growing pockets of knowledge generation in the scientific publications of some universities and research institutes, where greater interest is beginning to be shown in the protection of intellectual property as a tool for innovation. Despite these improvements, the figures for research and development investment and human resources available for science, technology and innovation activities show that the system is highly fragmented and there are still very wide gaps with regard to the country's competitiveness.

22. International evidence suggests that Peru must enter the "new knowledge economy" and, for that purpose, it is necessary to identify which sectors are the most favourable in terms of its competitive advantages and to devise the most appropriate strategies for breaking into such sectors in the most beneficial conditions possible.

23. It is against that backdrop that the country is set to implement policies and strategies allowing the development of science, technology and innovation, and technology transfer, as tools for sustainable economic and social development.

24. In the area of public policies, efforts of various kinds are being made, producing successful results in some cases and also yielding important lessons learned.

25. Many of these actions are based on recommendations contained in studies by the Economic Commission for Latin America and the Caribbean (ECLAC) (2009), the United Nations Conference on Trade and Development (UNCTAD) (2011), OECD (2011) and others, which demonstrate that, in order to ensure sustained long-term growth with convergence towards the income levels of richer OECD countries, resources must be allocated to innovation and technology transfer, which should be considered as a public good.

26. The Science, Technology and Innovation Policy Review of Peru, published by UNCTAD with the support of ECLAC, indicates, among its recommendations, that Peru should design a mix of STI policies and programmes which, combined with economic policy, will strengthen general STI capacities in Peru in a selected number of strategic sectors and technologies.

27. Some relatively experienced Peruvian companies have managed to prosper in the information and communications technologies (ICT) sector, performing well even at the international level. Furthermore, the application of biotechnology has a direct impact on many core activities in Peru (e.g., the agricultural, livestock, fish farming, forestry, mining, food and pharmaceutical sectors). Given that Peru is one of the world's most biodiverse countries, the development of biotechnology offers comparative advantages. Its successful development depends in part on the country's capacity to implement policies for the conservation and sustainable use of its biodiversity, and also requires expertise in many other aspects of the research, production, marketing and logistics chain.

28. Nanotechnology, applied to materials science, water decontamination and other areas, also represents an opportunity for Peru, requiring the development of teams with a greater critical mass of researchers. These three areas of knowledge were highlighted in the UNCTAD study.

29. The OECD, for its part, in the 2011 OECD Reviews of Innovation Policy: Peru, recommended "a coordinated policy design with a distributed landscape of implementation agencies".

30. It also proposed strengthening the governance of public research institutes (PRIs) (such as the Production Technology Institute) to ensure that "they fulfil their core missions of research, technological development and diffusion efficiently" and develop managerial capacities. Furthermore, it recommended considering the possibility of streamlining the PRI system through the merger of some institutes and promoting multidisciplinary projects, among other proposals. It recognized the role of intermediary institutions and proposed a significant expansion of technological innovation centres (CITEs) in terms of sectoral coverage and strengthened science and technology capacity in applied research.

31. The 2012 study "Diagnóstico del desempeño y necesidades de los institutos públicos de investigación y desarrollo (IPI) del Perú" (Diagnosis of performance and needs of research and development public institutions in Peru), produced through the Finnish company Advansis, within the framework of an IDB programme with the Ministry of Economy and Finance, states that the Peruvian system has a particular weakness in industrial research, although it considers that there is good sectoral and geographical coverage for the transfer of technology to industry through the technological innovation centres (CITEs). It also points out that in the fish and shellfish industry for direct human consumption, the Production Technology Institute plays a similar role to that of the CITEs, providing technology transfer and food processing (it also has its own production capacity).

32. Lastly, the 2012 assessment of the CITEs model financed by IDB found that the Ministry of Production's CITEs programme is generating positive results but faces challenges relating to its scale and relevance. It recommended establishing clearly what capacity exists to develop a range of services, through institutional reform, and to influence business competitiveness with an offering geared towards services for the transfer and dissemination of productive skills, technologies and know-how. The study highlighted the fact that technology extension programmes produce public goods that facilitate the modernization and technological updating of companies in view of information asymmetries (valuation of returns), the appropriateness of results, and economies of scale and scope (generation of information). The study states that the work of the CITEs would be more efficient if

it was carried out by specialized technical bodies with a public policy mandate from the ministerial authority.

II. Plans and policies

33. It is in this context that the lines of action for developing science, technology and innovation as key tools for the sustainable development of the Peruvian economy are being established. The 2002 National Accord took account of all State policies formulated and adopted on the basis of dialogue and consensus, following a national consultation process, to set a direction for the country's sustainable development and affirm its democratic governance. State Policy No. 20 of the National Accord: "Development of science and technology", provides as follows: "We undertake to strengthen the country's capacity to generate and use scientific and technological knowledge, to develop human resources, and to improve the management of natural resources and the competitiveness of companies". "To this end, the State will: (a) allocate greater resources, apply tax regulations and develop other funding modalities for the development of human capacity, scientific research, improvement of research infrastructure and technological innovation; (b) establish mechanisms to raise the level of scientific research and technological development of universities, research institutes and companies; (c) seek to develop highly qualified human resources in the productive sectors that are most promising for the national economy; (d) develop national and regional programmes with a productive, social and environmental impact; and promote throughout the population, particularly among youth and children, creativity, the experimental method, critical and logical reasoning, and respect for nature and society, through the media".

34. State Policy No. 20 aims to strengthen the country's capacity in the strategic field of science, technology and innovation in order to develop human resources, as well as improve the management of natural resources and make firms more competitive.

35. The road map established by the Government of President Ollanta Humala is aligned with the National Accord in this regard, and indicates clearly the path that will be taken to support the national strategies emphasized by the Peruvian State for the period until 2016. That document establishes the following priorities:

(a) "Organize and expand technical assistance, market information, technological innovation, production infrastructure and facilities for business organization";

(b) "Promote the creation of value and production chains exploiting the country's competitive advantages";

(c) Produce an "educational revolution that emphasizes quality and the development of science, technology and innovation";

(d) Promote "scholarships for postgraduate studies in countries with more advanced education standards, ... studies in applied sciences and capacity-building in technology".

36. The main elements of the road map and the National Accord incorporate the goals and strategic objectives of three of the main levels of government associated with promoting the country's economic sustainability: the Ministry of Production,

the National Competitiveness Council of the Ministry of Economy and Finance, and the National Council for Science, Technology and Technological Innovation (CONCYTEC).

37. The 2012-2016 Multiannual Strategic Programme of the Ministry of Production (PESEM) establishes the promotion of productivity and value added as its first pillar. Its first objective is to consolidate a decentralized, diversified, inclusive and environmentally sustainable production structure, with increasing productivity and value added. Policy 1 of that objective is to "promote innovation and technology transfer", to which end the following strategies will be implemented:

(a) Foster a strengthened national innovation system, encouraging the active participation of regional and local actors;

(b) Strengthen and promote the development, coordination, expansion and evaluation of local and regional providers of innovation and technology transfer services;

(c) Develop and promote mechanisms for financing innovation, technology transfer and entrepreneurship;

(d) Foster the use of ICT;

(e) Promote the dissemination of knowledge on matters relating to intellectual property, such as those associated with inventions and new technologies.

38. Science, technology and innovation constitutes the first area of action set out in the Competitiveness Agenda 2012-2013 prepared by the National Competitiveness Council of the Ministry of Economy and Finance. The goals associated with this area are as follows:

(a) Goal 1: ensure that a strengthened science, technology and innovation system is in place;

(b) Goal 2: ensure the availability of resources for science, technology and innovation institutions and public programmes that help to strengthen the system and ensure its sustainability;

(c) Goal 3: design and begin implementation of a system of scholarships (both national and foreign), aligned with the science, technology and innovation system;

(d) Goal 4: increase the critical mass of researchers by 20 per cent, in five areas prioritized by the National Plan for Science, Technology and Innovation 2009-2013;

(e) Goal 5: propose institutional and operating reform of the technological innovation centres (CITEs);

(f) Goal 6: expand the portfolio of services offered by the three types of CITE (public, private and other similar centres);

(g) Goal 7: ensure the existence of a support mechanism for agents of the system on intellectual property matters;

(h) Goal 8: support 20 innovative projects at the point of commercial launch that originated in the science, technology and innovation system.

39. Furthermore, the Plan Peru 2021 — Strategic Plan for National Development prepared by the National Centre for Strategic Planning (CEPLAN) of the Office of the President of the Council of Ministers, known as the Bicentenary Plan, sets a high level of development of science, technology and innovation activities geared towards improving business competitiveness and the population's quality of life, together with recognition of Peru as a society that generates new scientific-technological knowledge, as one of the national objectives for 2021.

40. The governing body, CONCYTEC, maintains and constantly reviews the National Plan for Science, Technology and Innovation for Competitiveness and Human Development 2006-2021, and aligns it with the national policies established by the Government.

41. The National Plan for Science, Technology and Innovation is the tool for putting forward and implementing national science, technology and innovation policy. It forms part of the State's policies and corresponds to a short-, medium- and long-term geostrategic vision. It is based on establishing strategic lines of action, setting priorities and planning the coordination and implementation of national and regional programmes, as well as special programmes proposed by the sectors and entities that form part of the National Science, Technology and Technological Innovation System (SINACYT).

42. The National Plan establishes directives and policies that are binding on the public sector and provide guidance for the private sector.

43. In 2006 the Peruvian State adopted the National Plan for Science, Technology and Innovation for Competitiveness and Human Development 2006-2021, by means of Supreme Decree No. 01-2006-ED. This management tool establishes a vision, objectives, goals, strategies, lines of action, national programmes and cross-cutting programmes in the area of science, technology and innovation. The Plan also requires regional governments to implement regional science, technology and innovation programmes.

44. The National Plan is based on the Political Constitution, the policies of the National Accord, applicable legislation and international regulations; it has served as the basis for drawing up the Bicentenary Plan with regard to science, technology and innovation. The National Plan for Science, Technology and Innovation for Competitiveness and Human Development is the Peruvian State's main public policy tool in this area.

III. Science, technology and innovation programmes and experiences

45. The National Plan for Science, Technology and Innovation provides for the implementation of a number of national science, technology and innovation programmes and a number of support programmes. The former are aimed at generating changes in the production of goods and services, as well as helping to resolve environmental and social problems. The special or support programmes contribute to the national programmes, generating the tools and means necessary for their implementation.

46. CONCYTEC is working to define the science, technology and innovation policy guidelines for the period 2013-2016, based on the National Plan for Science, Technology and Innovation to 2021 and taking into account the directives of the President of the Republic, Ollanta Humala, and the President of the Council of Ministers, the provisions of the Multiannual Macroeconomic Framework, the Competitiveness Agenda and the 2012-2016 Multiannual Strategic Programme of the Ministry of Production (PESEM), and the guidelines established in Supreme Decree No. 027-2007-PCM.

47. Each policy guideline allows the definition of a priority objective and an outcome for 2016. A number of national science, innovation and technology programmes have been established on this basis and specific lines of action are being defined for each programme.

Table 1

Guidelines for 2016	*Objectives for 2016*
Policy guideline 1	**Priority objective 1**
Science, technology and innovation for greater social inclusion and poverty reduction	Develop, transfer and disseminate technologies for social inclusion, environmental sustainability and poverty alleviation
Policy guideline 2	**Priority objective 2**
Sustainability of competitiveness, diversification and production complexity	Generate, transfer, adopt, use and exploit new knowledge and technologies to diversify the production model and increase productivity and competitiveness
Policy guideline 3	**Priority objective 3**
Human resources with the skills required to incorporate knowledge and innovations into the production structure	Increase human resources qualified in science, technology and innovation
Policy guideline 4	**Priority objective 4**
Social recognition of science, technology and innovation as a key factor for development	Improve use and ownership of scientific and technological knowledge in society
Policy guideline 5	**Priority objective 5**
Participative and results-based public management of science, technology and innovation	Modernize the public management of science, technology and innovation

48. National science, technology and innovation policy is implemented through science, technology and innovation programmes, by means of which public

management is focused on this area and guidance is provided for appropriate use of resources. The following programmes have been prioritized:

A. National programmes

49. Among the national programmes are:

(a) A programme for technology transfer and absorption for social inclusion (technologies for agrosylvopastoral and aquacultural activities, technologies for extractive activities and indigenous communities, and technologies for marginal urban areas);

(b) A biotechnology programme, targeting health, food security and nutrition, and the harnessing of biodiversity (promising agriculture and agro-industry, endemic diseases, bioprospecting, and fisheries and aquaculture);

(c) A materials science and technology programme, targeting the strengthening of industrial competitiveness (metallurgy, textiles, chemicals and petrochemicals, and nanomaterials);

(d) An ICT programme, to improve the competitiveness of Peruvian goods and services (industrial automation, computer services in the health, education and Government sectors, and the software industry);

(e) An environmental science and technology programme, targeting the strengthening of environmental sustainability and renewable energy (water, climate change, El Niño-Southern Oscillation and earthquakes, bioremediation and biomining, and renewable energy).

B. Support programmes

50. Among the support programmes are:

(a) A programme for human resources specialized in science, technology and innovation;

(b) A programme for the enhancement of innovation for competitiveness;

(c) A financial funds and instruments programme;

(d) A programme of international technical cooperation for ICT;

(e) A technology transfer and extension programme.

51. A set of public support schemes is currently in operation in Peru, aimed not only at providing support for activities and projects facilitating the development of science, technology and innovation, related to the modernization of companies' production, but also at promoting innovative business behaviours, practices and activities.

52. These programmes correspond to initiatives designed and put into operation at various points in time; various ministerial bodies are responsible for running them, including the Ministry of Production and the Office of the President of the Council of Ministers. The main programmes currently in operation are set out in table 2.

Table 2
Main public programmes in operation

Institution	*Programme*	*Main scope*
Ministry of Production	Mi Empresa (My Company)	Provision of information; management training; technical assistance and dissemination of good practices in the area of quality
	CITEs	Technical assistance, training and extension services in specific sectors and territorial areas
	Research and Development Fund for Competitiveness (FIDECOM)	Projects and initiatives for innovation in production and technological dissemination activities
Office of the President of the Council of Ministers	FINCyT	Projects and initiatives in support of technology absorption

53. The Mi Empresa (My Company) programme is a multipurpose promotion scheme, the main tasks of which comprise the provision of information for the training of managers of micro- and small enterprises; the formalization of traditional activities and the strengthening of business partnerships; and business training and the modernization of production and management. This last sphere includes the dissemination of good practices in manufacturing, the promotion of tools for continuous improvement (5S and kaizen) and quality systems. The main types of support offered under this programme and their scope are presented in table 3.

Table 3
Main areas of support offered under the Mi Empresa programme

Programme	*Areas of work*	*Scope*
Dissemination and training services	Information on business training and ITC; model business plans and assessments of business capacity; institutional portal	Documentation and publications; dissemination activities for business training
Training and technical assistance programmes	Training and activities in support of management and technical assistance for production; product quality and design; processes; working conditions and quality of work; human resource skills	Priority sectors (agro-industry, timber and carpentry, leather and footwear, textiles, handicrafts, metallurgy, tourism, hotels and gastronomy)
Technical assistance and quality programme	Certification in good manufacturing and management practices	Training, consultancy and certification with a view to improving business management and working conditions within micro- and small enterprises
	Quality management system; SEBRAE (Serviço Brasileiro de Apoio às Micro e Pequenas Empresas (Brazilian Support Service for Micro- and Small Enterprises)) model	Capacity-building for service providers

54. The technological innovation centres (CITEs) programme corresponds to an initiative implemented in 2000 to "promote innovation, quality and productivity and provide information for the competitive development of the various stages of national industrial production. The CITEs provide quality control and certification, consultancy and specialized assistance services, and develop technical training programmes." The programme was designed and implemented through the creation of centres specializing in the provision of technical assistance and technology extension services. Various centres have been accredited by the Ministry of Production; three of them are public centres within the Ministry's administrative structure that were attached to the Production Technology Institute in 2013. The private CITEs have been accredited by the Ministry and started their activities between 2002 and 2012. A list of the centres in 2012 is presented in table 4.

Table 4
Accredited technological innovation centres

Institution	*Location*	*Sector*	*Establishment and/or accreditation of CITE*
Public CITEs			
CITEccal	Lima	Leather, footwear and related industries	1998
CITEmadera	Lima	Timber and furniture	2000
CITEmadera (*)	Pucallpa	Forestry	
CITEvid	Ica	Grape cultivation, winemaking and agro-industry	2000
Private CITEs			Accreditation of CITE
CITEfrutas Tropicales y Plantas Medicinales	Loreto	Agro-industry	2002
CITEconfecciones El Taller	Arequipa	Textiles and clothing	2002
CITEagroindustrial CEPRORUI	Arequipa	Agro-industry	2003
CITEindustria Textil Camélidos del Perú	Arequipa	Textiles and clothing	2003
CITEagroindustrial	Tacna	Agro-industry	2003
CITEagroindustrial	Piura	Agro-industry	2004
CITE Logística	Lima	Multisectoral	2006
CITEsoftware	Lima	Software	2007
CITEagroalimentario de Majes y el Sur del Perú	Arequipa	Agro-industry	2008
CITEforestal	Loreto	Forestry	2009
CITEconfección y Diseño	Lima	Textiles	2009
CITEcacao	San Martín	Agro-industry	2011
CITEminería y Medio Ambiente	Cajamarca	Mining	2011

Production Technology Institute

55. The purpose of the reform driven by the Ministry of Production and approved in the 2013 Budget Act by the Congress of the Republic of Peru was "to expand the production base, achieve better quality and productivity, and generate greater value added and diversification in Peruvian production". The Act states that "the name of the Fisheries Technology Institute of Peru shall be changed to Production Technology Institute" in order to expand research, development, innovation, adaptation, transformation, technology transfer and extension services to the production sector in respect of hydrobiological resources, agro-industrial products and other industrial products within its sphere of competence, and to undertake their promotion. To that end, the public CITEs in the production sector were attached to the Production Technology Institute through Supreme Decree No. 003-2013-PRODUCE.

56. The Production Technology Institute is a specialized technical body established by law in May 1981, with legal personality in public law and with technical, economic and financial autonomy. Its competence is national in scope and it is attached to the Ministry of Production.

57. The UNCTAD, OECD and public research institute studies influenced the design of this reform, which brings together as a network the former Fisheries Technology Institute and the CITEs under the new name of the Production Technology Institute. It is a tool of industrial policy and will facilitate better linkages between business, academia and the State, with multisectoral institutions affording better coordination and greater effectiveness in terms of science, technology and innovation, which will contribute to the overcoming of technological heterogeneity, the inclusion of traditional knowledge, the valuation and conservation of biodiversity and the decentralization of productive capacity so that the production structure is transformed and yields differentiated products with greater value added, exports become more diverse, and the productivity of companies increases.

58. The aim of the new functional structure of the Production Technology Institute is to support the industry in certain sectors, identified at the outset, in which infrastructure comprising laboratories, pilot plants and specialized staff of the former Fisheries Technology Institute (fisheries and aquaculture) and the CITEs already exists. The reform process allows for the extension of comprehensive support to other sectors through joint management which shares actions within the framework of the new Peruvian Innovation System and the linkages between the State, academia and business and with local and regional governments and actors in order to respond to developments in local production which give value to the system's resources and contribute to economic, social and environmental sustainability.

59. The initial value proposition of the Production Technology Institute includes four specialized subsectoral divisions: fisheries and aquaculture; agro-industry; leather, footwear and related industries; and timber and furniture.

60. Each of these four divisions will implement three key processes: applied research, the development of products, processes and technology transfer, and provision of extension services which are permanent in nature, fostering a gradual process of innovation and quality management within companies and of support for

research management. The purpose of the reform is to strengthen the role of the Production Technology Institute in the national quality system and the promotion of standardization, in particular given the many free trade agreements signed by Peru which require compliance with standards, with the support of the committees on Peruvian technical standards in the four divisions' production chains and of those laboratories associated with the Institute which are accredited to conduct tests under the ISO/IEC 17025 standard.

61. Another fundamental aspect of the reform of the Production Technology Institute is the platform of shared services that will support the four subsectoral divisions, as well as companies and other agents in each value chain, and new enterprises.

Competitive funds

62. The Research and Development Fund for Competitiveness (FIDECOM) is a competitive fund the purpose of which is "to promote research into and the development of production innovation projects, with business participation, that are of practical use for increasing competitiveness". To finance the activities of FIDECOM, a total amount of 200 million nuevos soles was made available when it was brought into operation in 2009.

63. This financing scheme supports not only projects which incentivize innovative business practices and activities but also the development of activities which facilitate the modernization of companies' production, particularly at the micro-enterprise level. The operational objectives of FIDECOM are as follows:

(a) To promote research into and development of production innovation projects, with business participation, that are of practical use for increasing productivity and competitiveness, through non-reimbursable co-financing from the fund's resources. The projects may be focused on innovation in processes, products or services, technology transfer and dissemination, or other areas;

(b) To develop and strengthen the capacity to generate and apply technological knowledge for innovation in processes, products, services or other areas, technology transfer and dissemination among formal micro-enterprises, and the development of the production and business management capacities of such micro-enterprises' workers and managers through the non-reimbursable financing of projects, including training programmes.

64. The main results achieved by FIDECOM to date include the financing of 246 production innovation and knowledge transfer projects targeting micro-, small and medium-sized enterprises. The Fund has committed more than 64 million nuevos soles to these projects, while the beneficiary companies have contributed more than 34 million nuevos soles. In other words, in general terms, for every US$ 2 invested by the State, the private sector has invested US$ 1 in research and development for innovation in production. It should also be noted that 43 per cent of the projects approved were proposed by companies in the interior of the country, and 70 per cent were proposed and are being implemented by micro-enterprises.

65. FINCyT, lastly, is answerable to the Office of the President of the Council of Ministers. It is a programme which aims to promote the development of research, technological development and innovation activities, and the training of human resources in Peru. Its main purpose is to "contribute to an increase in the country's

competitiveness, strengthening the capacities for research and technological innovation and promoting linkages between business, universities and the State".

66. The resources under this programme came from two successive loan transactions with the Inter-American Development Bank (IDB) and the National Treasury. The operation of this programme corresponds to that of a fund operating, under competitive schemes, a number of types of support in each of its areas of activity.

67. FINCyT seeks to contribute to an improvement in the country's competitiveness through the following lines of action: generating scientific and technological knowledge; promoting innovation in companies and greater participation of the private sector; building technological research capacities; and strengthening the national innovation system.

68. The types of projects which it financed, in its first phase, are:

(a) technological innovation projects in companies;

(b) research and technological development projects in universities and research centres;

(c) capacity-building for science and technology, with grants and internships;

(d) projects to strengthen and improve coordination of the national innovation system.

69. The main results of FINCyT include the financing of 117 innovation projects in companies; 77 research projects in universities; 57 doctoral scholarships; 43 missions, consultancies and internships; and 20 equipment projects. These have produced 206 undergraduate theses, 55 postgraduate theses, 228 publications and 14 patent applications.

70. Finally, it should be mentioned that important legislative measures are already being taken in order to encourage research and development activities in companies, such as the enactment of Legislative Decree No. 1124, amending the Income Tax Act, as it refers, inter alia, to the deduction of tax for scientific research, technological development and technological innovation activities. This allows investment in research and development activities to be deducted from income tax, up to 1 million nuevos soles. Furthermore, it has been considered important to promote public-private associations to foster programmes and infrastructure for science and technology. To that end, Legislative Decree No. 29987 has been enacted, declaring the promotion of science, innovation and technology through public-private associations to be of national interest.

Public research institutes

71. The public research institutes have embarked on a strengthening process. For example, the National Institute for Agrarian Innovation (INIA), which is the agent in the agriculture sector responsible for developing a new focus on research, innovation, and technology extension and transfer, will be strengthened based on the outcome of the consultation being conducted by the World Bank and IDB. The Peruvian Maritime Research Institute (IMARPE), which is a specialized technical body in the fisheries subsector of the production sector, guides scientific research,

together with study and knowledge of the Peruvian sea and its resources. It has an organized research plan focused on the observation of fisheries resources, climatic variability in the ocean, the quality of the aquatic environment and the development of aquaculture, which consists of 45 research projects being developed along the whole of the Peruvian seaboard. The Peruvian Amazon Research Institute (IIAP) is a science and technology research institution for development, specialized in the sustainable use of biological diversity in the Amazon region, which is working intensively to achieve the Millennium Development Goals.

IV. The potential of culture for sustainable development

72. In political terms, Peru has highlighted the value of culture for the promotion of sustainable development and, in that connection, is taking various steps to enhance the potential of culture to achieve that aim.

73. In other words, for Peru the role of culture is crucial for achieving sustainable development, all the more so in societies such as its own, which has natural and cultural megadiversity, is one of the cradles of human civilization, and has great potential with regard to its identity and global competitiveness; this can be seen, for example, in the growth of ecotourism and gastronomy, as well as in research into Andean grains, especially quinoa and Amazonian products.

74. Similarly, the country understands that an intercultural reading of development will produce a State close to the people, in line with the policies of social inclusion promoted by the Peruvian Government, given that in any dialogue it is important to consider the role of culture and see it as a "pillar" of sustainable development, together with the economy, social life, the environment, politics and ethics, rather than simply focusing on the three traditional pillars of sustainable development.

75. National experience highlights various factors linked to the conceptualization of the process of change towards sustainable development, and also of the model of well-being to be achieved, i.e. a sustainable society; these include the epistemological and geopolitical meaning of natural and cultural megadiversity; and the circularity of time, given that sustainable development in the country involves looking not only forward to future generations but also back to previous ones, which bequeathed to us part of the environment and the resources we now enjoy.

V. Sustainable development and the achievement of the Millennium Development Goals

76. In Peru, science, technology and innovation aim to raise the productivity and competitiveness of firms, making the production model more sophisticated in terms of technology, adding value to natural resources, and diversifying the country's supply towards global markets, on the basis of clean eco-efficient products, processes and services, and with a view to the conservation of biodiversity.

77. With regard to ICT, Peru has 33,600 population centres with access to telecommunications, 34 million mobile lines and 514,000 mobile broadband connections. As for the figures that provide evidence of an increase of ICTs in education, 40 per cent of students and teachers have access to digital resources, the ratio of students per computer is 6.26 and the connectivity of public schools is

11 per cent, as a result of measures aimed at improving access to high-quality telecommunications services throughout Peru and services provided by the State to citizens and businesses.

78. The National Plan for Science, Technology and Innovation for Competitiveness and Human Development 2006-2021 includes the following priority line of action "Environment: Water, disaster prevention (landslides, droughts, flooding, earthquakes, El Niño), climate change, clean technologies, technologies to mitigate the environmental impacts of mining, oil-related, industrial and urban activities".

79. The most important issues are defined from two perspectives: the first groups together those issues that affect a greater number of people, especially those who are least protected owing to their precarious economic situation, for example access to good-quality water; and the second includes those issues that are conducive to building a more environmentally friendly and efficient production sector.

80. With regard to the second perspective, the lines of action being promoted by the State on various fronts relating to the enhancement of productivity, quality, innovation, science and technology in the business environment include measures concerning the efficient use of energy, renewable energy, use of eco-friendly materials and eco-efficient technologies, and treatment of waste and pollutants.

81. In addition, one line of action being emphasized in recent productive programmes relates to the concept of green innovation in businesses, for example, projects and programmes to tackle climate change, such as the use of climate-resistant seeds in the agricultural sector; or the use in industry of materials that are less polluting, biodegradable or do not entail environmental and biodiversity degradation.

82. In 2000, Peru made a commitment to meet the MDGs.

83. The Peruvian State is fully aware of the need to raise the standard of living of the poorest citizens in Peru and to overcome social inequalities.

84. As part of its commitment to the poorest people, the Peruvian State has promoted the national inclusive growth strategy "Crecer para Incluir", as well as the national programme of direct support to the poorest "Juntos", through which poor households receive economic assistance, provided they fulfil certain conditions, such as the requirement for school attendance or vaccination of their children. Other important social programmes include the "water for all" and "glass of milk" initiatives, *comedores populares* (community kitchens), Qaliwarma ("healthy children"), comprehensive health insurance, rural electrification, irrigation, and agro-rural programmes, *Construyendo Peru* (temporary employment), *Techo Propio* (housing loans), *Pension-65* (pension scheme for the rural poor), and *Beca 18* (scholarship programme).

85. Concerning the implementation of the MDGs, the National Institute of Statistics and Information Technology has prepared tables of statistical information on the progress made to date, which describe the situation as follows:

86. With regard to Goal 1 (eradicate extreme poverty and hunger):

(a) Peru has reduced the poverty rate by almost half, from 54.8 per cent of the population in 2001 to 27.8 per cent in 2011, and the target of 25 per cent for 2015 will be achieved three years earlier, based on figures for 2012;

(b) Extreme poverty was reduced from 24.4 per cent to 6.3 per cent between 2001 and 2011. The target of reducing extreme poverty rates by half was achieved in 2007, and further improvements have been made since then;

(c) Chronic child malnutrition decreased from 25.4 per cent in 2000 to 15.2 per cent in 2011. The MDG target of 18.3 per cent was achieved in 2009.

87. With regard to Goal 3 (promote gender equality and empower women), in 1991 there was gender disparity in primary education (gender parity index of 0.985). The goal of parity (1.000) was achieved in 2011.

88. With regard to Goal 4 (reduce by two thirds, between 1990 and 2015, the under-five mortality rate), the infant mortality rate (0-1 year) per 1,000 live births was reduced from 55 on the 1991/1992 baseline to 16 in 2011, thereby achieving the target.

89. With regard to Goal 7 (ensure environmental sustainability), which aims to integrate the principles of sustainable development into country policies and programmes, and reverse the loss of environmental resources, it should be pointed out that the Government of Peru has made substantive changes to its legislation, taking into account the process of global climate change, its biological diversity and its commitment to achieve the MDGs. To that end:

(a) the Ministry of the Environment has been established;

(b) the environmental vision of Peru has been changed to incorporate environmental concepts that correspond to a country characterized by a mountainous, Amazonian and coastal geography;

(c) Climate change adaptation projects are being implemented by productive bodies at the individual, local and regional levels, demonstrating the interest of economic agents in mitigating the effects of climate change and their greater participation in the globalized economy;

(d) In 2011, the natural areas protected by the State increased to a total of 19,560,000 hectares;

(e) With regard to the population with sustainable access to improved sources of water, in 2011 Peru was 4.5 percentage points away from achieving the MDG target set for 2015 of 81.3 per cent;

(f) Similarly, there has been a steady increase in the percentage of the population living in homes with adequate drainage.

90. With regard to Goal 8 (develop a global partnership for development):

(a) In relation to the target of giving the population access to new communication technologies, between 2001 and 2011 the percentage of the population with fixed telephone lines increased from 23.3 per cent to 30.7 per cent, while mobile telephones saw a noticeable increase, from 7.76 per cent to 79.3 per cent;

(b) Similarly, the percentage of the population with personal computers increased from 5.7 per cent in 2001 to 27.4 per cent in 2011, while the population in households with Internet access rose from barely 0.5 per cent in 2001 to 17.7 per cent in 2011.